THE CLAIMS

1. A fully automated disinfection system for use with transesophageal ultrasonic probe assemblies incorporating an electronics containing portion and an elongated flexible shaft extending therefrom and terminating with a transducer, said disinfection system comprising:

A. a housing;

B. an elongated passageway supportingly mounted in the housing and constructed for receiving and retaining the flexible shaft and transducer of the ultrasonic probe assembly in their entirety;

C. a holding member positioned in association with the elongated passageway for receiving and retaining the electronics containing portion of the probe assembly in a position free from exposure to any disinfection solution;

D. a disinfection solution dispensing section positioned in association with the elongated passageway and constructed for receiving a quantity of disinfection solution and dispensing the disinfection solution to the passageway for contact with the flexible shaft of the ultrasonic probe assembly;

E. circulation means constructed for circulating the disinfection solution through the passageway to provide complete disinfection of the outer surface of the flexible shaft of the ultrasonic probe assembly; and

F. control means for providing automatic activation and de-activation of the circulation means to achieve the required operational steps to assure complete disinfection of the flexible shaft of the ultrasonic probe assembly;

whereby a single system is achieved for providing complete, automated disinfection of any desired ultrasonic probe assembly without requiring any operator intervention.

2. The fully automated disinfection system defined in Claim 1, wherein said elongated passageway is further defined as comprising a continuous, smooth, elongated pathway having a proximal end and a distal end, with the distal end representing the lowest point of said elongated passageway.

3. The fully automated disinfection system defined in Claim 2, wherein said elongated passageway is further defined as being articulately curved along its length for achieving space minimization.

4. The fully automated disinfection system defined in Claim 2, wherein said disinfection solution comprises between about 2.5% and 3.0% by weight based upon the weight of the entire composition of glutaraldehyde.

5. The fully automated disinfection system defined in Claim 4, wherein said disinfection solution is further defined as being contained in a single use container.

6. The fully automated disinfection system defined in Claim 4, wherein said system further comprises a closed loop conduit path extending between the proximal end of said passageway, the solution dispensing section, and the distal end of said passageway.

7. The fully automated disinfection system defined in Claim 6, wherein said system further comprises a heater mounted in said closed conduit path and constructed for heating the disinfection solution during its passage through said closed loop path.

8. The fully automated disinfection system defined in Claim 7, wherein said heater is further defined as being constructed for maintaining the temperature of the disinfection solution between about 35°C. and 45°C. during its circulation through said closed loop path.

9. The fully automated disinfection system defined in claim 7, wherein the circulation means is further defined as comprising a pump and a plurality of valves constructed for being responsive to control signals for opening and closing said valves.

10. The fully automated disinfection system defined in Claim 4, wherein said system further comprises an air circulation fan and filter mounted within said housing for controlling the odors of all materials contained within said housing and passing said odor laden materials through said filter prior to discharging the filtered air from the interior of said housing.

11. The fully automated disinfection system defined in Claim 10, wherein said control means is further defined as comprising a computer-based electronics assembly constructed for controlling all components contained within said system and providing control signals for opening and closing the plurality of valves in a predefined sequence for providing passage of the disinfection solution through the passageway in a manner which assures disinfection of the flexible shaft and transducer of the ultrasonic probe.

12. The fully automated disinfection system defined in Claim 11, wherein said system further comprises a water inlet portal for receiving water and delivering the water to the circulation means for enabling the controlled passage of the water through the passageway for rinsing the flexible tube and transducer of the ultrasonic probe assembly after application of the disinfection solution.

13. The fully automated disinfection system defined in Claim 12, wherein the computer-based electronics assembly of the control means is further constructed for providing repeated rinse cycles for removing all disinfection solution from the flexible shaft and transducer of the ultrasonic probe assembly, the empty container and the closed loop conduit path.

14. The fully automated disinfection system defined in Claim 5, wherein said disinfection solution dispensing section is further defined as comprising container receiving means for enabling the placement and securement of the disinfectant container in direct association therewith, and seal rupturing means for automatically breaking any seal mechanism associated with the disinfectant container.

15. The fully automated disinfection system defined in Claim 1, wherein said system further comprises an input panel directly associated with the control means for enabling relevant data to be provided to the control means by the operator.

16. The fully automated disinfection system defined in Claim 15, wherein said input panel is employed for providing one or more control data selected from the group consisting of identifying indicia of the ultrasonic probe assembly, identifying indicia of the disinfectant solution container, process parameters, and special instructions.

17. The fully automated disinfection system defined in Claim 16, wherein said system is further defined as comprising a printer assembly cooperatively associated therewith for providing relevant information data to the operator after the completion of the disinfection cycle.